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REMARKS/ARGUMENTS

The Examiner has rejected former Claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Joannopoulos et al. (U.S. Patent No. 5,955,749).

Joannopoulos et al. disclose a light emitting device comprising (FIG. 6): (1) a substrate 602; (ii) a Bragg mirror 622 (n layers of alternating materials of low refractive indices); and (iii) a two-dimensionally periodic structure 612 comprising a lower n-type dielectric layer 604, an undoped quantum well stratum 606 which serves as the radiation source, and an upper p-type dielectric layer 608.

The periodic structure 612 covers the whole surface of the Bragg mirror 622 and extends into the three superposed layers 604, 606 and 608. This periodic structure 612 forms a light extraction means which permits light extraction in a direction perpendicular to this layer.

The radiation source 606 generates electromagnetic radiation which couples to the radiation modes rather than to the guided modes in the periodic structure (see the abstract and Col. 2, lines 24-34 and 45-51). It is further indicated (Col. 2, lines 9-11) that no resonance is involved in the device disclosed by Joannopoulos et al.

On the contrary, the electroluminescent device according to the present invention comprises a radiation source (conversion layer 7) which couples to the guided modes and not to the radiation modes in the periodic structure, and this periodic structure does not cover the Bragg mirror but is formed in the periphery of the conversion and generating layers 6, 7, 8 and communicates with the "central part" of said layers 6, 7, 8 in order to extract out of these layers the photons in the guided mode.

The Examiner has rejected former Claim 1, contending that Joannopoulos et al. disclose all the claimed subject matter except for the function of the converting means and of the mirrors (containment of photons having a wavelength associated to a guided mode) but that there is no structural difference between the claimed invention and the prior art.

However, this reference does not teach or render obvious the applicants' invention for several reasons:

In Joannopoulos et al., the converting layer and the mirror are not defined by their structure, but by their function (see Claims 1, 14, 27) 28 in which the radiation source generates

PAGE 7/9 * RCVD AT 1/10/2005 1:44:02 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/4 * DNIS:8729306 * CSID:7043316090 * DURATION (mm-ss):02-54

radiation which couples to radiation modes rather than to guided modes. So the Examiner should recognize that the means plus functions disclosed by Joannopoulos et al. do not anticipate the means plus functions recited in former Claim 1.

The Examiner has not taken into account the structural differences between Joannopoulos et al. and the claimed invention, and in particular, that the light extraction means which are formed in all the surface of the radiation source 606 and of the upper and lower dielectric layers 604, 608 in Joannopoulos et al., whereas the light extraction means are formed in the periphery of these layers, i.e. around these layers, according to the claimed invention, this difference being essential for extracting light in the guided mode from these layers.

It clearly follows from the above that the present invention is neither anticipated nor rendered obvious by Joannopoulos et al.

Ostergaard et al. discloses substantially the same device as Joannopoulos, with a light aperture provided in the periodic structure so as to allow the light to propagate through the aperture. This prior document, taken separately or in view of Joannopoulos et al., does not anticipate the invention or render it obvious.

Former Claim 1 has been rewritten in order to more clearly recite the nature of the conversion layer of the generating layers. This new independent claim is allowable over the prior art for the reasons noted above.

The Examiner has also objected to the drawings which do not show the resonant or anti-resonant cavities defined by the mirrors. However, these cavities are made of solid material and are shown in Figure 2 -- the cavity (resonant or anti-resonant) is constituted by the layers 6, 7, 8 (see in particular the English text of the specification, on page 8, lines 19-34 and on page 9, lines 1-7).

Consequently, it is not necessary to amend the drawings, and in view of this explanation the Examiner's objection to the drawings should be withdrawn.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required

PAGE 8/9 * RCVD AT 1/10/2005 1:44:02 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/4 * DNIS:8729306 * CSID:7043316090 * DURATION (mm-ss):02-54

therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

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I hereby certify that this paper is being facsimile transmitted to the U. S. Patent and Trademark Office at Fax No. (703) 872-9306 on the date shown below.

Grace Rippy Date January 10, 2005

PAGE 9/9 * RCVD AT 1/10/2005 1:44:02 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/4 * DNIS:8729306 * CSID:7043316090 * DURATION (mm-ss):02-54